Polink DS-MM A Kit for Immunohistochemistry Staining

Polymer-HRP&AP double staining kit to distinct **two mouse antibodies** on Human tissue with DAB (Brown) and **AP-Red+** (Red)

Storage: 2-8ºC

Catalog No.:☐ DS203A-6/(D78-6A) 12ml* 60 slides**
☐ DS203A-18 36ml* 180 slides**
☐ DS203A-60 120ml* 600slides**
**Total volume of polymer Conjugates*
*** if use 100µl per slide*

Intended Use:
The **Polink DS-MM A Kit** is designed to use with user supplied two mouse antibodies to detect two distinct antigens on human tissue or cell samples. This kit has been tested in paraffin tissue. However, this kit can be used on frozen specimen and freshly prepared monolayer cell smears.

Double staining is one of most common methods used in immunohistostaining that allow revealing two distinct antigens in a single tissue[1, 2]. **Polink DS-MM A Kit** from GBI Labs (Golden Bridge International) supplies two polymer enzyme conjugates: HRP polymer anti-Mouse IgG and AP polymer anti-Mouse IgG with two distinct substrates/chromogens, DAB (brown color, use with HRP polymer anti-Mouse IgG) and AP-Red+ (red color, use with AP polymer anti-Mouse IgG). **Polink DS-MM A Kit** is non-biotin system that avoids endogenous biotin non-specific binding.

Kit Components:

Component No.	Content	12ml Kit	36ml Kit	120ml Kit
Reagent 1	HRP polymer anti-Mouse IgG (RTU)	6ml	18ml	60ml
Reagent 2A	DAB substrate buffer (RTU)	6ml	18ml	60ml
Reagent 2B	DAB chromogen (20x)	1ml	1ml	3ml
Reagent 3A	DS-MM Blocker A (RTU)	6ml	18ml	60ml
Reagent 3B	DS-MM Blocker B (RTU)	6ml	18ml	60ml
Reagent 4	AP polymer anti-Mouse IgG (RTU)	6ml	18ml	60ml
Reagent 5A	AP-Red Plus Enhancer (40x)	1ml	1ml	2ml
Reagent 5B	AP-Red Plus Solution (40x)	1ml	1ml	2ml
Reagent 5C	AP-Red Plus Substrate (20x)	4ml	4ml	8ml
Reagent 6	Simpo-Mount solution (RTU)	6ml	18ml	60ml

Recommended Protocol:

1. Fixation: To ensure the quality of the staining and obtain reproducible performance, user needs to supply appropriately fixed tissue and well prepared slides.
2. Tissue need to be adhered to the slide tightly to avoid tissue falling off.
3. Paraffin embedded section must be deparffinized with xylene and rehydrated with a graded series of ethanol before staining.
4. Cell smear samples should be made as much monolayer as possible to obtain satisfactory results.
5. Three control slides will aid the interpretation of the result: positive tissue control, reagent control (slides treated with Isotype control reagent), and negative control.
6. It takes about 30 minutes to dissolve AP-Red+ tablet into the substrate buffer. Make sure to start preparing AP-Red+ solution near the end of the secondary antibody incubation.
7. Proceed IHC staining: DO NOT let specimen or tissue dry from this point on.

Reagent	Staining Procedure	Incubation Time (Min.)
1. Peroxidase Blocking Reagent Not provided	a. Incubate slides in peroxidese blocking reagent (Ready-to-use 3% H_2O_2 solution) for 10 minutes. b. Rinse the slide using distilled water.	10 min
2. HIER Pretreatment: Refer to antibody data sheet.	a. Heat Induced Epitope Retrieval (HIER) may be required for primary antibody suggested by vendor. b. Wash with PBS containing 0.05% Tween-20 for 2 min., 3 times.	

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3. Preblock (optional)	For paraffin section, Improved formula saves the need for a preblock step. For frozen tissue, preblock may or may not be required depending on fixative. (Preblock catalogue No.:E07 was Recommended.)	
4. Mouse Antibody 1: Supplied by user	***Notes:*** Investigator needs to optimize dilution and incubation times prior to double staining. a. Apply 2 drops or enough volume of mouse primary antibody 1 to cover the tissue completely. Incubate in moist chamber for 30-60 min. b. Rinse with PBS containing 0.05% Tween-20 for 2 min., 3 times.	30-60 min
5.**Reagent 1** HRP polymer anti-Mouse IgG (RTU)	a. Apply 2 drops (100µl) of **Reagent 1** HRP polymer anti-Mouse IgG to cover each section. b. Incubate in moist chamber for 15 min. c. Rinse with PBS containing 0.05% Tween-20 for 2 min., 3 times.	15 min
6. **Reagents 2A, 2B** **Reagents 2A:** DAB Substrate **Reagents 2B:** DAB Chromogen	a. Add 1 drop or **2 drops** (for higher sensitivity and contrast) of **Reagent 2B** to 1 ml **Reagent 2A**. Mix well. Protect from light and use within 7 hours. b. Apply 2 drops or enough volume of DAB CHROMOGEN mixture to completely cover tissue. Incubate for 3-10 min. c. Rinse thoroughly with distilled water 3 times, 2 minutes each time. d. Rinse with PBS containing 0.05% Tween-20 for 2 min., 3 times.	3-10 min
7. **Reagent 3A** DS-MM Blocker A	a. Apply 2 drops or enough volume of **Reagent 3A** DS-MM Blocker A to cover the tissue completely. Mix well on the slide and Incubate in moist chamber for 30 min. b. Rinse with PBS containing 0.05% Tween-20 for 2 min., 3 times.	30 min
8. **Reagent 3B** DS-MM Blocker B	a. Apply 2 drops or enough volume of **Reagent 3B** DS-MM Blocker B to cover the tissue completely. Mix well on the slide and Incubate in moist chamber for 10 min. b. Rinse with PBS containing 0.05% Tween-20 for 2 min., 3 times.	5 min
9. Mouse antibody 2: Supplied by user	***Notes:*** Investigator needs to optimize dilution and incubation times prior to double staining. a. Apply 2 drops or enough volume of mouse primary antibody 2 to cover the tissue completely. b. Rinse with PBS containing 0.05% Tween-20 for 2 min., 3 times.	30-60 min
10. **Reagent 4** AP polymer anti-Mouse IgG (RTU)	a. Apply 2 drops (100µl) of **Reagent 4** AP polymer anti-Mouse IgG to cover each section. b. Incubate in moist chamber for 15 min. c. Rinse with PBS containing 0.05% Tween-20 for 2 min., 3 times. d. Rinse with tap water.	15 min
11. **Reagent 5A, 5B, 5C** **Reagent 5A:** AP-Red Plus Enhancer (40x) **Reagent 5B:** AP-Red Plus Solution (40x) **Reagent 5C:** AP-Red Plus Substrate (20x)	a. Add 1 drop (50µl) of **Reagent 5A** and 1 drop of **Reagent** 5**B** to a test tube. Mix well and set at room temperature for 5 minutes. b. Add 2ml of distilled water to the mixture. Mix well. c. Add 4 drops (200µl) of **Reagent 5C** and mix well. d. Apply 2 drops (100µl) or enough volume of AP-Red Plus mixture to completely cover the tissue. Incubate for 15-20 min., observe appropriate color development. e. Rinse well with distilled water. (**AP-Red Plus is alcohol soluble; do not dehydrate.**)	15-20 min
12. HEMATOXYLIN Not provided	a. Counterstain with 2 drops (100µl) or enough volume of hematoxylin to completely cover tissue. Incubate for 10-15 seconds. b. Rinse thoroughly with tap water for 2-3 min. c. Put slides in PBS until show blue color (about ½ - 1 min.) d. Rinse well in distilled water.	

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13. **Reagent 6:** Simpo-Mount	a. Apply 2 drops (100µl) or enough volume of **Reagent 6** Simpo-Mount to cover tissue when tissue is wet. Rotate the slides to allow Simpo-Mount spread evenly. **DO NOT** coverslip. b. Place slides horizontally in an oven at 40-50°C for at least 30 minutes or leave it at room temperature until slides are thoroughly dried. Hardened Simpo-Mount forms an impervious polymer barrier to organic solvent. Do not use oil directly on the top of dried Simpo-Mount.	30 min. in 40-50°C oven Or: overnight at room temperature

Protocol Notes:

1. The fixation, tissue slide thickness, antigen retrieval and primary antibody dilution and incubation time effect results significantly. Investigator needs to consider all factors and determine optimal conditions when interpret the result.
2. Simpo-Mount is water-based mounting medium for immunohistology. It may be used as the permanent mounting media. It does not need coverslip. However, if you need to coverslip, after Simpo-Mount dried, dip the slide in xylene and take out immediately. Apply O-Mount (organic mounting solution, Catalog No. E02-15) on the tissue and place cover glass on the slide. Store it after dry completely.

Precautious:

DAB may be carcinogenic. Please wear gloves and take other necessary precautions.

Remarks:

For research use only.

References:

1. De Pasquale A, Paterlini P, Quaglino D.*Immunochemical demonstration of different antigens in single cells in paraffin-embedded histological sections.* Clin Lab Haematol. 1982;4(3):267-72.

2. Polak J. M and Van Noorden S. Introduction to Immnocytochemistry Second Edition. Bios Scientific Publishers. P41-54. 1997

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